

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A code division multiple access (CDMA) base station system, comprising:
  - a channel card, configured to modulate and output a first signal and receive and demodulate a second signal;
  - a transmitter configured to transmit the first signal outputted from the channel card through a first antenna;
  - a receiver configured to receive a signal from a second antenna and provide the received signal to the channel card;
  - a radio frequency (RF) characteristic analyzer, configured to monitor output signals of the transmitter and the receiver and analyze characteristics of the transmitter and the receiver, and [generating] generate a result of the monitoring and analysis;
  - a first processor configured to provide an interface among the channel card, the transmitter, the receiver, and the RF characteristic analyzer and to receive the result from RF characteristic analyzer;

a power level measuring device, to measure a power level of a final end of the base station, and provide the power level to the first processor; and

a second processor, configured to provide an interface between the first processor and an exchange,

wherein the RF characteristic analyzer comprises:

a first analyzing circuit to monitor and analyze the output signal of the transmitter;

a second analyzing circuit for monitoring and analyzing the output signal of the receiver; and

an alarm circuit to receive analyzed data from the first and second analyzing circuits and generate an alarm signal.

2. (Currently Amended) The system of claim 1, wherein the RF characteristic analyzer further comprises:

~~a first analyzing circuit to monitor and analyze the output signal of the transmitter;~~

~~a second analyzing circuit for monitoring and analyzing the output signal of the receiver;~~

~~an alarm circuit to receive analyzed data from the first and second analyzing circuits and generate an alarm signal;~~

an input/output circuit configured to communicatively couple the RF characteristic analyzer with the first processor; and

a power supply to supply power to the RF characteristic analyzer.

3. (Currently Amended) The ~~CDMA base station~~ system of claim 2, wherein the first analyzing circuit comprises:

a first filter configured to receive the output signal of the transmitter and filter a specified signal band;

an analog-to-digital converter coupled to receive an analog output signal of the first filter and convert it into a digital signal;

a second filter coupled to receive an output signal from the analog-to-digital converter and pass therethrough only a prescribed frequency of the output signal;

a differentiator coupled to receive an output of the second filter and determine whether a strength of the signal outputted from the analog-to-digital converter is increasing;

a sign changer coupled to receive an output signal of the differentiator and change a sign of the output signal of the differentiator;

an integrator coupled to receive the output of the second filter and output a positive integer value if the output signal of the second filter is greater than a prescribed value; and

a logic gate coupled to logically combine an output signal of the sign changer and an output of the integrator.

4. (Original) The system of claim 3, wherein the first filter is a band rejection filter and the second filter is a low pass filter.

5. (Currently Amended) The ~~CDMA base station~~ system of claim 2, wherein the second analyzing circuit comprises:

a first filter configured to receive the output signal of the receiver and pass only a first prescribed signal band;

an analog-to-digital converter coupled to receive the band signal and convert it to a digital signal;

a second filter coupled to receive the digital signal and pass therethrough only a second prescribed frequency of the digital signal;

a differentiator coupled to receive an output signal of the second filter and determine whether a strength of the digital signal is increasing;

a sign changer coupled to receive an output signal of the differentiator and change a sign of the output signal of the differentiator;

an integrator coupled to receive the output of the second filter and output a positive integer value if the output signal of the second filter is greater than a prescribed value; and

a logic gate coupled to logically combine an output signal of the sign changer and an output of the integrator.

6. (Original) The system of claim 5, wherein the first filter is a band pass filter and the second filter is a low pass filter.

7. (Currently Amended) The system of claim 2, wherein the first analyzing circuit monitors and analyzes the output of the transmitter in real time, and wherein the second analyzing circuit monitors and analyzes the output of the [receive] receiver, in real time.

8. (Original) A code division multiple access (CDMA) base station system, comprising:

a transmitter configured to modulate and transmit a first signal through a first antenna;

a receiver configured to receive and demodulate a second signal through a second antenna;

a radio frequency (RF) characteristic analyzer coupled to monitor and analyze an output signal of each of the transmitter and receiver and determine an extent of signal degradation, and to provide a monitoring signal based on the level of degradation.

9. (Currently Amended) The system of claim 8, wherein the RF characteristic analyzer comprises:

a first analyzing circuit coupled to monitor and analyze an output signal of the transmitter in real time;

a second analyzing circuit coupled to monitor and analyze an output signal of the receiver in real time; and

an alarm circuit coupled to receive analyzed data from the first and second analyzing circuits, and [generating] generate the monitoring signal.

10. (Original) The system of claim 9, wherein the first analyzing circuit comprises:
- a band rejection filter coupled to receive the transmitter output signal and filter out a prescribed band of the signal;
  - a first analog-to-digital (A/D) converter coupled to convert an output of the band rejection filter into a digital signal;
  - a first low pass filter coupled to the A/D converter to pass only a low frequency digital signal;
  - a first signal processor coupled to determine whether a strength of the low frequency digital signal is increasing;
  - a first output circuit coupled to change a sign of an output signal of the first signal processor and generate a first output signal;
  - a second signal processor coupled to determine if the strength of the low frequency digital signal is greater than a prescribed threshold value; and
  - a second output circuit coupled to logically combine the first output signal with an output of the second signal processor and generate a second output signal.

11. (Currently Amended) The system of claim 10, wherein the second analyzing circuit comprises:

a band pass filter coupled to receive the receiver output signal and pass only a prescribed band of the signal;

a second A/D converter coupled to convert an output of the band pass filter into a digital signal;

a second low pass filter coupled to the A/D converter to pass only a low frequency digital signal;

a third signal processor [[to]] coupled to determine whether a strength of the low frequency digital signal is increasing;

a third output circuit coupled to change a sign of an output signal of the third signal processor and generate a third output signal;

a fourth signal processor coupled to determine if the strength of the low frequency digital signal is greater than a prescribed threshold value; and

a fourth output circuit coupled to logically combine the third output signal with an output of the fourth signal processor to generate a fourth output signal.

12. (Original) The system of claim 11, wherein the alarm circuit generates a first monitoring signal in response to the first output signal, a second monitoring signal in response to the second output signal, a third monitoring signal in response to the third output signal, and a fourth monitoring signal in response to the fourth output signal.



13. (Currently Amended) The system of claim 11, wherein the first and third signal processors each comprise a differentiator, the second and fourth signal processors each comprise an integrator, and the second and fourth output circuits comprise an [[and]] AND gate.

14. (Currently Amended) A RF characteristic analyzer for a communications system, comprising:

- an input/output module, coupled to the communications system;
- a first analyzing circuit coupled to receive and analyze a transmission signal of the communications system through the input/output module;
- a second analyzing circuit coupled to receive and analyze a reception signal of the communications system through the input/output module; and
- an alarm circuit coupled to receive analyzed data from the first and second analyzing circuits, and configured to provide at least one alarm message according to the analyzed data.

15. (Currently Amended) The ~~RF-characteristic~~ analyzer of claim 14, wherein the first analyzing circuit comprises:

an analog-to-digital (A/D) converter coupled to receive the transmission signal and convert it into a digital output signal;

a differentiator coupled to receive the digital output signal of the A/D converter and generate a differentiated output signal;

an integrator coupled to receive the digital output signal of the A/D converter and generate an integrated output signal.

16. (Currently Amended) The ~~RF-characteristic~~ analyzer of claim 15, further comprising a channel card coupled to modulate the transmission signal and demodulate the reception signal, a transmitter to transmit the modulated transmission signal through a transmitting antenna, a receiver to receive a signal demodulated by the channel card, a first processor to provide an interface among the channel card, the transmitter, the receiver, and the input/output module, and a second processor to provide an interface between the first processor and an exchange.

17. (Currently Amended) The ~~RF-characteristic~~ analyzer of claim 15, wherein the first analyzing circuit further comprises:

a band rejection filter coupled to receive and filter the transmission signal and to provide a filtered signal having a prescribed band of frequencies to the A/D converter;

a low pass filter coupled to receive the digital output signal of the A/D converter and provide a low frequency digital signal to each of the differentiator and integrator;

a sign changer coupled to receive the differentiated output signal of the differentiator and change the sign of the differentiated output signal to provide first analyzed data; and

a logic gate coupled to logically combine an output signal of the sign changer and the integrated output signal of the integrator to provide second analyzed data.

18. (Original) The analyzer of claim 17, wherein the first analyzed data indicates whether a signal strength of an unused band of frequencies is increasing, and the second analyzed data indicates whether the signal strength of the unused band of frequencies is increasing and exceeds a prescribed value.

19. (Currently Amended) The ~~RF characteristic~~ analyzer of claim 14, wherein the second analyzing circuit comprises:

an analog-to-digital (A/D) converter coupled to receive the reception signal and convert it into a digital output signal;

a differentiator coupled to receive the digital output signal of the A/D converter and generate a differentiated output signal;

an integrator coupled to receive the digital output signal of the A/D converter and generate an integrated output signal.

20. (Currently Amended) The ~~RF~~ characteristic analyzer of claim 19, wherein the second analyzing circuit further comprises:

a band pass filter coupled to receive and filter the reception signal and to provide a filtered signal having a prescribed band of frequencies to the A/D converter;

a low pass filter coupled to receive the digital output signal of the A/D converter and provide a low frequency digital signal to each of the differentiator and integrator;

a sign changer coupled to receive the differentiated output signal of the differentiator and change the sign of the differentiated output signal to provide first analyzed data; and

a logic gate coupled to logically combine an output signal of the sign changer and the integrated output signal of the integrator to provide second analyzed data.

21. (Original) The analyzer of claim 20, wherein the first analyzed data indicates whether a signal strength of an unused band of frequencies is increasing, and the second

analyzed data indicates whether the signal strength of the unused band of frequencies is increasing and exceeds a prescribed value.

22. (Original) The analyzer of claim 20, wherein the differentiated output signal indicates whether a strength of the digital output signal is increasing and the integrated output signal indicates whether the strength of the digital output signal is greater than a prescribed value.

23. (Original) The analyzer of claim 17, wherein the differentiated output signal indicates whether a strength of the digital output signal is increasing and the integrated output signal indicates whether the strength of the digital output signal is greater than a prescribed value.

24-26. (Canceled).

27. (New) A base station system, comprising:  
a RF characteristic analyzer configured to monitor and analyze output signals of a transmission frequency band filter and a receiving frequency converter so as to determine if a call quality of the base station is going to deteriorate; and

an alarm circuit configured to generate at least one alarm if the RF characteristic analyzer determines the call quality is going to deteriorate.

28. (New) The system of claim 27, wherein the RF characteristic analyzer determines if the call quality is going to deteriorate by analyzing RF characteristics of the transmission frequency band filter and the receiving frequency converter.

29. (New) The system of claim 27, wherein the RF characteristic analyzer analyzes unwanted wave signals that includes an out-of-band signal transmitted by the base station.

30. (New) The system of claim 29, wherein the unwanted wave signals have frequencies of  $\pm 1.25$  MHZ,  $\pm 1.98$  MHZ,  $\pm 2.25$  MHZ and greater than  $\pm 2.25$  MHZ when the band frequency is 1.23 MHZ.

31. (New) The system of claim 29, wherein the alarm circuit generates the at least one alarm if a signal strength of the out-of-band signal increases beyond a predetermined level.